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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/535,567	05/19/2005	David Frank Davies	H27651 4582/110424	7705

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EXAMINER

EOM, ROBERT J

ART UNIT

PAPER NUMBER

1772

NOTIFICATION DATE

DELIVERY MODE

04/18/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/535,567	Applicant(s) DAVIES ET AL.	
	Examiner ROBERT EOM	Art Unit 1772	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 54-60 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 54-60 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 54-60 have been considered but are moot in view of the new ground(s) of rejection.

The Applicants have amended the claims to further define the molded structural shape of the housing, not previously presented, for consideration upon merits for patentability.

The Applicants' remarks are directed towards the lack of features (over-molded plastic structures), which were not previously presented for consideration. Therefore, the previous grounds of rejection have been withdrawn, and new grounds of rejection, in view of Christen et al. (USP 4,352,099), have been included herein in order to address these new features.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 54-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Christen et al. (USP 4,352,099, referred to herein as "Christen"), in view of Tindall et al. (USP 6,351,982 B1, referred to herein as "Tindall").

Regarding claims 54 and 56-58, Christen discloses an explosive gas sensor comprising: a metal connecting frame (**Fig. 1, see: metallic bushings 9**); and a housing having a first portion formed of a first type of plastic (**Fig. 1, see: cover**

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member member 1b; C6/L65, see: suitable plastics material) the first portion, at least in part, surrounds the frame with elongated portions of the frame extending through and encapsulated by portions of the first type of plastic with other portions of the frame accessible to provide contacts exterior to the first portion (**C7/L50-52, see: embedded by mean of a suitable casting resin in the cover member 1b**), and with the encapsulated portion of the frame forming a flame proof seal with the encapsulating first portion (**Fig. 1, see: cover member 1b**) with the housing having a second outer portion (**Fig. 1, see: splash proof protection 8**) which encloses the first portion and non-contact portions of the frame, and defines a gas inflow port (**Fig. 1, see: open passage located below gas sensor 6; C7/L14-15, see: gridded window**); and a metal mesh flame arrestor that covers the inflow port (**Fig. 1, see: cover 5; C7/L11-12, see: gas pervious sintered metal**).

Christen does not explicitly disclose the second portion of the housing being formed of a different plastic material molded over the first portion, and bonded in part to the metal mesh by plastic filling voids in the mesh adjacent thereto.

Tindall teaches a flammable gas detector (**Fig. 2**) comprising: a two piece housing (**10, 11, 12**) which made of molded plastic material (**C3/L62-C4/L8**) which screw together to form an enclosed chamber (**13**), further comprising a sinter element (**14**) which is molded into the housing (**C4/L9-20**). It would have been obvious to one having ordinary skill in the art at the time of the invention to modify the splash proof protection and flame arrestor of Christen, into a molded plastic housing interface, as taught by Tindall, since doing so would eliminate the requirements for machining the

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housing and fixing the sinter element to the housing in a separate operation, thereby reducing the overall number of manufacturing operations and thus providing for subsequent savings in both manufacturing time and cost (**Tindall: C2/L18-26**).

Additionally, Tindall teaches a plurality of suitable plastic materials for use as a housing body (**C2/L27-35**), it would have been obvious to one having ordinary skill in art at the time of the invention to select the same or different plastic material for the housing body since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 55, modified Christen discloses all of the claim limitations as set forth above. Modified Christen does not explicitly disclose the encapsulated portion of the frame being at least 6 mm long. However, since the Applicant's disclosure is silent to unexpected results, it would have been obvious to one having ordinary skill in the art to changed the size of the encapsulated portion of the frame, since such a modification would involve a mere change in size (or dimension) of a component. A change in size (dimension) is generally recognized as being within the level of ordinary skill in the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Where the only difference between the prior art and the claims is a recitation of relative dimensions of the claimed device, and the device having the claimed dimensions would not perform differently than the prior art device, the claimed device is not patentably distinct from the prior art device, Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984).

6. Claim 59 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christen et al. (USP 4,352,099, referred to herein as “Christen”), in view of Tindall et al. (USP 6,351,982 B1, referred to herein as “Tindall”), as applied to claims 54, 56, and 57 above, in further view of Doncaster et al. (EP 0940680 A2, referred to herein as “Doncaster”).

Regarding claim 59, modified Christen discloses all of the claim limitations as set forth above. Modified Christen does not explicitly disclose a filter located in the sensing region between the gas sensor and the metal mesh.

Doncaster teaches a combustible gas detector **[0001]** comprising a bronze sinter **(Fig. 2, see: bronze sinter 10)** which reacts with hydrogen sulphide to prevent some of it from reaching the sensing bead **[0020]**. It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate bronze sinter in between the gas sensor and metal mesh of the gas sensor of modified Christen, as taught by Doncaster, since doing so prevents catalyst inhibition, which is caused by hydrogen sulphide **(Doncaster: [0004])** as well as allows the gas sensor to be operable at a relatively high temperature **(Doncaster: [0020])**.

7. Claim 60 is rejected under 35 U.S.C. 103(a) as being unpatentable over Christen et al. (USP 4,352,099, referred to herein as “Christen”), in view of Tindall et al. (USP 6,351,982 B1, referred to herein as “Tindall”), as applied to claim 54, in further view of Davies (USP 5,601,693 A, referred to therein as “Davies”).

Regarding claim 60, modified Christen discloses all of the claim limitations as set forth above. Modified Christen does not explicitly disclose an electronic storage unit coupled to at least some of the contacts.

Davies teaches a gas sensor and housing (**Fig. 1**) comprising a substrate having electronic circuitry printed thereon, including a memory (**C2/L37-38**). It would have been obvious to one having ordinary skill in the art at the time of the invention to incorporate an electronic storage unit into the gas sensor of modified Christen, as taught by Davies, as doing so provides for signal processing without the need for separate, additional electronics (**Davies: C2/L37-38**).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT EOM whose telephone number is (571)270-7075. The examiner can normally be reached on Mon.-Thur., 9:00am-5:00pm, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Insuk Bullock can be reached on (571)272-5944. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. E./
Examiner, Art Unit 1772

/In Suk Bullock/
Supervisory Patent Examiner, Art Unit 1772